REMARKS

The Office Action dated October 5, 2010 has been carefully reviewed and the following remarks are responsive thereto.

Claims 1-26 remain pending. Reconsideration and allowance are respectfully requested.

Claim Rejections - 35 USC§103

Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppenstein (US 2004/0204109 A1) in view of Lipka (US 2006/0040624 A1). This rejection is respectfully traversed for the following reasons.

Claim 1:

Claim 1 of the present application recites a device for realizing beam-forming in CDMA system:

said device comprising in a forward signal flow, at least a base band system, an optical transceiver system, a transceiver system, an analog fixed beam-forming network, a power amplifier, a transmission filter at a radio frequency front end, and an antenna system;

said device comprising in a reverse signal flow, at least the antenna system, a reception filter at a radio frequency front end, a low noise amplifier, the analog fixed beam-forming network, the transceiver system, the optical transceiver system and the base band system;

said base band system including at least one base band chip, the at least one base band chip having a plurality of sectors;

the optical transceiver system comprising an optical fiber and an optical interface board close to the base band system and an optical interface board close to the transceiver system, and enabling the base band system be placed in a warehouse so as to make the base band system support the plurality of sectors, and a radio frequency part close to the antenna, thereby reducing power loss;

said optical interface board being used to interconvert electronic signals and optical

signals input;

when transmitting forward signals, different beams are reflected to the sectors of the at least one base band chip to have different time delays in the base band system so that they are not coherent with one another even when different beams carry same information.

The Office Action concedes that Hoppenstein is silent about the features "said base band system including at least one base band chip, the at least one base band chip having a plurality of sectors" and "when transmitting forward signals, different beams are reflected to the sectors of the at least one base band chip to have different time delays in the base band system so that they are not coherent with one another even when different beams carry same information" in claim 1 of the present application, and asserts that Lipka cure the deficiencies of Hoppenstein. However, Applicants respectfully submit that these distinguishing features of claim 1 from Hoppenstein are not taught or suggested by Lipka.

Firstly, Lipka does not teach or suggest a base band system including at least one base band chip, the at least one base band chip having a plurality of sectors. Lipka recites "*The transmitter stage may additionally include at least one of a signal transformer for transforming the power amplifier output signals into individual analog beam or sector signals... The distributing component, which may be configured as a digital network for beamforming or sectorshaping or as a digital coupler matrix, is preferably arranged in a signal path after or within a processing unit for generating the digital beam or sector signals, **like** a baseband spreader unit for spreading the beam or sector signals. Such a spreader unit will for example be required if a WCDMA scheme is to be implemented*" (see, e.g., paragraph [0023] of Lipka). It can be seen that the distributing component in Lipka is arranged after or within a processing unit for generating a digital beam or sector signals, that is, ***the distributing component is arranged after the base band system***, which is also shown in figures 1 and 3 of Lipka. Thus the distributing component in Lipka is neither a part of the base band system nor a

base band chip. In fact, as Lipka mainly relates to peak power limitation in a transmitter stage (see, e.g., paragraph [0001] of Lipka), Lipka is irrelevant with base band processing and does not teach or suggest a base band chip. Besides, as shown by the above cited portion of Lipka, the sector signals in Lipka are transformed from power amplifier output signals by a signal transformer in the transmitter stage. Hence the sector signals in Lipka is of no relation with **the sectors in the at least one base band chip** defined in claim 1 of the present invention. Therefore, the features "said base band system including at least one base band chip, the at least one base band chip having a plurality of sectors" in claim 1 of the present application are not taught or suggested by Lipka.

Secondly, Lipka does not teach or suggest when transmitting forward signals, different beams are reflected to the sectors of the at least one base band chip to have different time delays in the base band system. Lipka relates to performing peak power limitation in a transmitter stage that includes a power amplifier pool with two or more individual power amplifiers (see, e.g., paragraph [0001] of Lipka), and Lipka recites "*For sidelobe reduction for example, the power should vary among the individual antenna elements of antenna array 60 in such a way that signals having a lower power are radiated from outer array elements and signals having a higher power from central array elements. A corresponding power distribution scheme is implemented in the digital beamforming network 50. The non-equal power distribution discussed above allows to use smaller amplifiers 26_1, 26_4 for the outer array elements and more powerful amplifiers 26_2, 26_3 for the central array elements*" (see, e.g., paragraph [0054] of Lipka). It can be seen that Lipka mainly relates to power distribution among the power amplifiers in a power amplifier pool (also shown by paragraph [0008] of Lipka), and such power distribution apparently does not belong to base band processing. As stated above, Lipka is irrelevant with base band processing and does not teach or suggest a base band system including at least one base band chip, the at least one base band chip having a plurality of sectors. Accordingly, Lipka does not teach or suggest **reflecting different beams to the sectors of the at least one base band chip to**

have different time delays in the base band system when transmitting forward signals as recited in claim 1 of the present invention.

Besides, it should be noted that Lipka recites "*Due to imperfections of the analog components of the transmitter stage 14, relative delays between the individual analog signals input to the inverse coupler matrix 20 can occur. Therefore, a digital delay controller 48 is provided which allows to digitally adjust the absolute delay of each of the four branches in such a way that the inverse coupler matrix 20 receives the analog output signals of the power amplifiers 26.sub.1 . . . 26.sub.4* ***substantially simultaneously***" (see, e.g., paragraph [0051] of Lipka), which shows that Lipka actually ***compensate the delays*** between the analog signals so that they become ***simultaneous***, instead of making them have different time delays in the output antenna port.

Thirdly, it can be seen from claim 1 that the feature "when transmitting forward signals, different beams are reflected to the sectors of the at least one base band chip to have different time delays in the base band system" is for the purpose that **different beams are not coherent with one another even when the different beams carry same information**.

In contrast, as stated above, Lipka relates to performing peak power limitation in a transmitter stage that includes a power amplifier pool with two or more individual power amplifiers. And the destination of Lipka is to efficiently perform power amplifier pooling in particular in a narrow beam or sectorized environment by combining power amplifier pooling with peak power limitation (see, e.g., paragraphs [0008]-[0009] of Lipka). Lipka is not intended to and in fact does not solve the problem of coherence between different beams. In particular, Lipka recites "*An advantage of the digital distributing components, i.e. the digital coupler matrix 18 of FIG. 1 and the digital beamforming network 50 of FIG. 3, is the fact that imperfections of processing components in the analog domain can be compensated in the digital domain by e.g. appropriately adapting the coefficients of the digital distributing components. For example phase differences introduced by the*

transceiver units 24_1... 24_4 may be compensated by controlling the phase of the coefficients or by adding a fixed phase to the digital beam signals." (see, e.g., paragraph [0055] of Lipka). It can be seen that the distributing components in Lipka have the advantage of compensating imperfections of processing components in the analog domain, such as ***compensating the phase differences***. However, Lipka never solve the problem of **coherence between different beams**. In fact, as Lipka is irrelevant with the concept of a common channel for transmitting signals, Lipka is not intended to and cannot solve the problem of coherence between different beams in the common channel.

Based on the above reasons, Lipka neither solve the problem solved by claim 1 of the present application nor offer a technical teaching of applying the above distinguishing features of claim 1 to solve the problem. Lipka fails to cure the deficiencies of Hoppenstein.

Further, the above distinguishing features of claim 1 are not common general knowledge in the art. Thus the prior art, as a whole, does not suggest or teach the above distinguishing technical features. Applicants respectfully submit that the prior art does not provide any relative teachings for one of ordinary skill in the art to acquire the technical scheme defined in claim 1 over Lipka and Hoppenstein with a combination of the above distinguishing technical features and further solves the technical problem to be solved in the present invention. The applicants respectfully submit that it is non-obvious for one of ordinary skill in the art at the time of the invention to modify Lipka and Hoppenstein by the existing technology in the prior art, to solve the problem to be solved in the present invention. Accordingly, claim 1 conforms to the provisions of 35 U.S.C. 103.

As such, Applicants respectfully submit that claim 1 is in condition for allowance.

Claims 2-6 and 19-22:

Claims 2-6 and 19-22 are dependent on claim 1 directly or indirectly, and are thus

allowable for at least the same reasons as claim 1.

Claim 7:

Claim 7 of the present application defines a device for realizing beam-forming in CDMA system, and recites, among other features, said base band system including at least one base band chip, the at least one base band chip having a plurality of sectors; when transmitting forward signals, different beams are reflected to the sectors of the at least one base band chip to have different time delays in the base band system so that they are not coherent with one another even when the different beams carry same information.

For similar reasons as those stated above for claim 1, Applicants respectfully submit that claim 7 of the present application also conforms to the provisions of 35 U.S.C. 103.

As such, Applicants respectfully submit that claim 7 is in condition for allowance.

Claims 8-11 and 23-25:

Claims 8-11 and 23-25 depend on claim 7 directly or indirectly, and are thus allowable for at least the same reasons as claim 7.

Claim 12:

Claim 12 of the present application defines a method for realizing beam-forming in CDMA system, and recites, among other features, step one: in a base band, reflecting base band signals of each fixed beam to sectors of base band chips; step two: making the base band signals of the fixed beams reflected to corresponding sectors of the base band chips have different time delays.

For similar reasons as those stated above for claim 1, Applicants respectfully submit that claim 12 of the present application also conforms to the provisions of 35 U.S.C. 103.

As such, the applicants respectfully submit that claim 12 is in condition for allowance.

Claims 13-18 and 26

Claims 13-18 and 26 depend on claim 12 directly or indirectly, and are thus allowable for at least the same reasons as claim 12.

Applicant hereby requests reconsideration and reexamination thereof.

With the above amendments and remarks, this application is considered ready for allowance and Applicant earnestly solicits an early notice of same. Should the Examiner be of the opinion that a telephone conference would expedite prosecution of the subject application, he is respectfully requested to call the undersigned at the below listed number.

Respectfully submitted,

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